

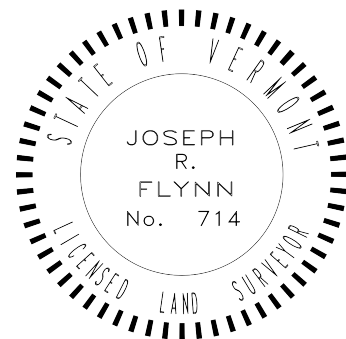
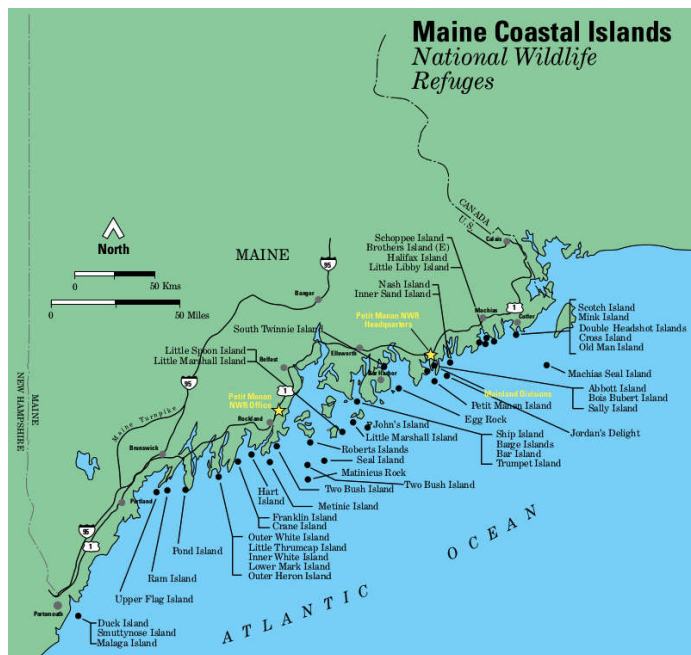
Geodetic Leveling Report

Stronger Coast DOI #30 Project

L28260 - Geodetic Leveling for New US Fish
& Wildlife Refuges Maine Coastal Islands

Petit Manan NWR

Millbridge and Gouldsboro Township, Maine



United States Fish and Wildlife Service
November 3, 2015

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Project Control Maps





Project Plot Maps





Project Report

A. Location

This project is located in Millbridge and Gouldsboro Townships at the Petit Manan National Wildlife Refuge.

B. Scope

1. Purpose

The purpose of this project was to provide accurate orthometric heights on geodetic control monuments to aid in monitoring salt marshes at the National Wildlife Refuges at the Moosehorn NWR.

2. Specifications

2nd Order Class 2 specifications were followed during the execution of this project.

3. Monumentation

Two methods of monumentation were utilized for permanent monumentation on this project.

Brass disk set in drill hole of massive boulders or rock outcrops.

Aluminum rods driven to refusal with a 6" PVC sleeve filled with washed sand with an aluminum cap. PVC sleeve is covered with a 5" logo cover. The sleeve is encased in concrete.

The specifications for setting the monuments are best described in Attachments 7 through 9 of the "General Guidance and Specifications for Aeronautical Surveys Volume A," located at <http://www.ngs.noaa.gov/AERO/aerospecs.htm#FAA405>.

C. Instrumentation

The following electronic digital levels were utilized on this project:

Make	Model	Serial #
Leica	DNA03	347180

The following leveling rods were used on the project:

Leica	INVAR	64502
Leica	INVAR	64505

The following GPS receivers were used on the project:

CHC	X90 OPUS	38718_15
CHC	X90 OPUS	38718_12
Leica	GS 15	1509721
Leica	GS 15	1509758

The following software programs were used on this project:

NGS WinDesc version 5.00.37
NGS Translev version 4.17.23
Leica Geo Office
X9x Download (B9163)

D. Procedures

1. Reconnaissance

Reconnaissance began in the office utilizing National Geodetic Survey Data Explorer (See <http://geodesy.noaa.gov/NGSDDataExplorer/>). The database and software allows the user to easily search an area for possible existing bench marks to serve as starting reference points. Once several bench marks that match the specifications outlined in the Scope of Work were identified, a field reconnaissance was performed. The reconnaissance comprised of a site visit with US Fish and Wildlife, where staff was met in the field to locate desirable locations for the new Bench Marks. Two Refuge sites were chosen, one on a rock outcrop in a salt marsh Northwest of Stoerhs Way in the Township of Millbridge and one next to a beaver pond at the end of Old Country Road in the Township of Gouldsboro. Two existing NGS bench marks were recovered at the Millbridge area site, TIDAL 2 STA 7 (PD0350) and TIDAL 3 STA 7 (PD0353). Two existing NGS bench marks were recovered at the Gouldsboro area site, F 169 (PE0205) and Q 69 (PE0204). Check runs were performed between TIDAL 2 STA 7 (PD0350) and TIDAL 3 STA 7 (PD0353) also F 169 (PE0205) and Q 69 (PE0204); checked within specifications.

2. Setting Monuments

Massive boulders or rock outcrops are preferred for setting permanent monuments, when these are not available massive concrete structures are utilized. Where areas that are void of bridges and ledge outcrops then aluminum rods driven to refusal are set with a 6" PVC sleeve

filled with washed sand with an aluminum cap is utilized. The PVC sleeve is capped with a 5" logo cover and the sleeve is encased in concrete on the surface.

At the Millbridge site, a brass disk set in drill hole was set in a massive rock outcrop.

At the Gouldsboro site, an aluminum rod was set in the ground next to a beaver pond.

3. Horizontal Position Data

Project Scope requires the establishment of horizontal location data on the new monuments. This requirement was satisfied through a minimum 4 hour GPS observation that was performed on the Millbridge and Gouldsboro monuments. The collected data was submitted to NGS using OPUS STATIC data reduction, which provided a horizontal location sufficient to meet the needs outlined in the Scope of Work.

4. Leveling Plan

- a. Upon completion of the reconnaissance and setting of the new monuments, a proposed leveling plan was compiled based on protocols established by NGS for Second Order, Class 2 Geodetic Leveling. Each plan was reviewed by NGS Advisor Daniel Martin for correct procedures and approved prior to starting the leveling phase.
- b. All existing monuments and new monuments were entered into NGS's WinDesk software program and assigned SSN numbers. These numbers are used to identify each point and placed in a reference file. That file was integrated into the database while performing the level runs and is necessary for data review and reduction when processed through NGS's Translev software.

5. Leveling Procedure

a. Petit Manan NWR "Millbridge" (L28260_1)

Leveling was started by performing a check run between TIDAL 2 STA 7 (PD0350) and TIDAL 3 STA 7 (PD0353), the difference between the published elevation and the leveled elevation was 1.90 millimeters. The allowable difference was 2.53 millimeters. Then a double run level run was performed between TIDAL 2 STA 7 (PD0350) and Intermediate point 216. Then a double run level run was performed between Intermediate point 216 and MILLBRIDGE.

Subsequently after all the leveling data was processed and compared with the OPUS derived values a difference of 0.925 meters was found. The differential between OPUS and leveling was also compared for the Intermediate point 216 which also yielded a very similar value of 0.927 meters. Therefore due to the closeness of the 2 existing benchmark stations and the strength of the OPUS observations the values based on the OPUS 24 hours will be held.

b. Petit Manan NWR "Gouldsboro" (L28260_2)

Leveling was started by performing a check run between F 169 (PE0205) and Q 69 (PE0204), the difference between the published elevation and the leveled elevation was 0.85 millimeters. The allowable difference was 9.02 millimeters. Then a double run level run was performed between Q 69 (PE0204) and GOULDSBORO.

6. Computations and submission to NGS publishing

L28260_1, Maine Coastal Islands NWR Benchmarks, Error and warnings encountered:

All error and warnings were removed from the description file and the lvl file.

Errors encountered in the .hgz file include;

--(WARNING) Line 2 Leave the part number blank if there is only one part to the project.

--(WARNING) Line 14 Number of set-ups exceeds 40.

--(WARNING) Line 14 Field distance (2.65 km) exceeds distance computed from Lat/Lon (1.31 km) by more than 0.50 km.

--(WARNING) Line 16 Number of set-ups exceeds 40.

--(WARNING) Line 16 Field distance (2.64 km) exceeds distance computed from Lat/Lon (1.31 km) by more than 0.50 km.

This is part one of a two part project with rough terrain that caused short setup distances and indirect routes. This is further outlined in the following statistics.

--(ERROR) Line 18 Record(s) not in chronological order.

All times and dates were in order, based on a thorough review of the lvl. Files. Correction of this error could not be ascertained.

L28260_2, Maine Coastal Islands NWR Benchmarks, Error and warnings encountered:

All error and warnings were removed from the description file and the lvl file.

No errors were encountered in the .hgz file.

E. Statistics

L28260_1 Millbridge Refuge Site

Total No. Runnings: 5
Total Distance (km): 7.43
Avg Running Dist (km): 1.49
Avg Sight Dist (m): 18.6
Total Time (Hr.): 11.8
Total Time (Days): 2
Setups/Hour: 17
Kilometers/Hour: 0.63
Kilometers/Day: 3.7

L28260_2 Gouldsboro Refuge Site

Total No. Runnings: 3
Total Distance (km): 3.58
Avg Running Dist (km): 1.19
Avg Sight Dist (m): 24.9
Total Time (Hr.): 3.9
Total Time (Days): 1
Setups/Hour: 19
Kilometers/Hour: 0.93
Kilometers/Day: 3.6

F. Status

The reduced data will be submitted to NGS for review and approval in to the National Geodetic Data Base and published within the NGS Integrated Data Base, (IDB).

Final NAVD 88 Elevations and NAD 83 OPUS Derived Horizontal Location

L28260_1 Millbridge Site

2.040m Pending NGS

N44°29'46.85382" W67°51'49.74753"

L28260_2 Gouldsboro Site

11.41583m Pending NGS

N44°29'08.94175" W68°03'34.8665"

OPUS Solutions



Gerald Stockman <gstockman@dubois-king.com>

OPUS solution : Project e7p4krpu : Millbridge.150 OP1440782623411

1 message

opus <opus@ngs.noaa.gov>
Reply-To: ngs.opus@noaa.gov
To: GSTOCKMAN@dubois-king.com

Millbridge Precise OPUS

Fri, Aug 28, 2015 at 1:25 PM

FILE: Millbridge.150 OP1440782623411

NGS OPUS SOLUTION REPORT =====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: <http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: GSTOCKMAN@DUBOIS-KING.COM DATE: August 28, 2015
RINEX FILE: mill208x.15o TIME: 17:25:31 UTC

SOFTWARE: page5 1209.04 master92.pl 022814 START: 2015/07/27 23:18:00
EPHEMERIS: igs18551.eph [precise] STOP: 2015/07/28 21:34:00
NAV FILE: brdc2080.15n OBS USED: 33105 / 36508 : 91%
ANT NAME: LEIGS15 NONE # FIXED AMB: 198 / 248 : 80%
ARP HEIGHT: 2.0 OVERALL RMS: 0.018(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2015.5710)

X:	1717111.323(m)	0.003(m)	1717110.444(m)	0.003(m)
Y:	-4221086.492(m)	0.016(m)	-4221085.073(m)	0.016(m)
Z:	4447583.708(m)	0.016(m)	4447583.733(m)	0.016(m)

LAT:	44 29 46.85382	0.001(m)	44 29 46.89176	0.001(m)
E LON:	292 8 10.25247	0.005(m)	292 8 10.23982	0.005(m)
W LON:	67 51 49.74753	0.005(m)	67 51 49.76018	0.005(m)
EL HGT:	-21.467(m)	0.022(m)	-22.623(m)	0.022(m)
ORTHO HGT:	2.040(m)	0.039(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES	STATE PLANE COORDINATES
	UTM (Zone 19)	SPC (1801 ME E)
Northing (Y) [meters]	4927631.307	92376.750
Easting (X) [meters]	590329.604	350593.334
Convergence [degrees]	0.79636196	0.44588582
Point Scale	0.99970034	0.99993147
Combined Factor	0.99970370	0.99993484

US NATIONAL GRID DESIGNATOR: 19TEK9032927631(NAD 83)

BASE STATIONS USED			
PID	DESIGNATION	LATITUDE	LONGITUDE DISTANCE(m)
DN9938	MEMA MACHIAS CORS ARP	N444235.480	W0672729.754 39994.1
DK4436	PNB6 PENOBSCOT 6 CORS ARP	N442707.247	W0684619.958 72442.9

DO2058	MEWA WALDO CORS ARP	N442715.192	W0690549.489 98232.1
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NEAREST NGS PUBLISHED CONTROL POINT			
PID	TURNER RESET	N443010.495	W0675145.140 738.1
PD1161			

Millbridge Closeup



Millbridge Tripod Height



Millbridge Horizon





Gerald Stockman <gstockman@dubois-king.com>

OPUS solution : Project e7p4krpu : Intermediate_216 OP1440782880886

1 message

opus <opus@ngs.noaa.gov>
Reply-To: ngs.opus@noaa.gov
To: GSTOCKMAN@dubois-king.com

Fri, Aug 28, 2015 at 1:29 PM

FILE: Intermediate_216 OP1440782880886

Intermediate 216 Precise OPUS

NGS OPUS SOLUTION REPORT =====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: GSTOCKMAN@DUBOIS-KING.COM DATE: August 28, 2015
RINEX FILE: inte210l.15o TIME: 17:29:15 UTC

SOFTWARE: page5 1209.04 [master52.pl](#) 022814 START: 2015/07/29 11:41:00
EPHEMERIS: igs18553.eph [precise] STOP: 2015/07/29 19:13:00
NAV FILE: brdc2100.15n OBS USED: 16561 / 19010 : 87%
ANT NAME: LEIGS15 NONE # FIXED AMB: 121 / 147 : 82%
ARP HEIGHT: 2.0 OVERALL RMS: 0.021(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2015.5744)

X:	1717103.157(m)	0.019(m)	1717102.278(m)	0.019(m)
Y:	-4220129.527(m)	0.011(m)	-4220128.108(m)	0.011(m)
Z:	4448500.538(m)	0.017(m)	4448500.563(m)	0.017(m)

LAT:	44 30 28.23703	0.015(m)	44 30 28.27498	0.015(m)
E LON:	292 8 26.23493	0.021(m)	292 8 26.22228	0.021(m)
W LON:	67 51 33.76507	0.021(m)	67 51 33.77772	0.021(m)
EL HGT:	-13.236(m)	0.009(m)	-14.392(m)	0.009(m)
ORTHO HGT:	10.262(m)	0.018(m)	[NAVD88 (Computed using GEOID12B)]	

UTM COORDINATES STATE PLANE COORDINATES

	UTM (Zone 19)	SPC (1801 ME E)
Northing (Y) [meters]	4928913.102	93656.766
Easting (X) [meters]	590664.744	350936.388
Convergence [degrees]	0.79963734	0.44908923
Point Scale	0.99970109	0.99993190
Combined Factor	0.99970316	0.99993398

US NATIONAL GRID DESIGNATOR: 19TEK9066428913(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP1322	MECC BANGOR CORS ARP	N444933.210	W0684438.601	78555.6
AH5044	BARH BAR HARBOR CORS ARP	N442342.137	W0681318.079	31444.6

DO2058	MEWA WALDO CORS ARP	N442715.192	W0690549.489	98644.2
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NEAREST NGS PUBLISHED CONTROL POINT

PD1161	TURNER RESET	N443010.495	W0675145.140	603.2
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Intermediate 216 Close Up



Intermediate 216 Tripod Height







Randall Otis <rotis@dubois-king.com>

OPUS solution : 100_1600.15o OP1438895338895

1 message

opus <opus@ngs.noaa.gov>
 Reply-To: ngs.opus@noaa.gov
 To: rotis@dubois-king.com

Gouldsboro Precise OPUS

Thu, Aug 6, 2015 at 5:10 PM

FILE: 100_1600.15o OP1438895338895

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.
 For additional information: <http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: rotis@dubois-king.com
 RINEX FILE: 100_160r.15o

DATE: August 06, 2015
 TIME: 21:09:43 UTC

SOFTWARE: page5 1209.04 [master92.pl](#) 022814 START: 2015/06/09 17:35:00
 EPHEMERIS: igs18482.eph [precise] STOP: 2015/06/09 21:54:00
 NAV FILE: brdc1600.15n OBS USED: 9826 / 10519 : 93%
 ANT NAME: LEIGS15 NONE # FIXED AMB: 77 / 85 : 91%
 ARP HEIGHT: 2.000 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2015.4379)

X:	1706668.985(m)	0.007(m)	1706668.108(m)	0.007(m)
Y:	-4226210.818(m)	0.022(m)	-4226209.399(m)	0.022(m)
Z:	4446755.313(m)	0.009(m)	4446755.336(m)	0.009(m)

LAT:	44 29 8.94175	0.011(m)	44 29 8.97961	0.011(m)
E LON:	291 59 25.13035	0.010(m)	291 59 25.11760	0.010(m)
W LON:	68 0 34.86965	0.010(m)	68 0 34.88240	0.010(m)
EL HGT:	-12.330(m)	0.017(m)	-13.487(m)	0.017(m)
ORTHO HGT:	11.451(m)	0.031(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES	STATE PLANE COORDINATES
	UTM (Zone 19)	SPC (1801 ME E)
Northing (Y) [meters]	4926310.686	91126.700
Easting (X) [meters]	578746.894	339000.017
Convergence [degrees]	0.69398092	0.34358335
Point Scale	0.99967626	0.99991870
Combined Factor	0.99967819	0.99992063

US NATIONAL GRID DESIGNATOR: 19TEK7874626310(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DJ8951	VTC1 RANDOLPH CORS ARP	N435621.218	W0723612.565	372030.2
DL2744	VTMI MIDDLEBURY CORS ARP	N435955.025	W0730909.380	414222.6
AF9563	VCAP VERMONT CAPITAL CORS ARP	N441543.106	W0723456.554	365201.3

NEAREST NGS PUBLISHED CONTROL POINT

PE0203	E 169	N442928.	W0680057.	765.3
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Gouldsboro Close Up



Gouldsboro Tripod Height



Gouldsboro Horizon



Recovered Stations

8/28/2015

DATASHEETS

The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.7.1
1      National Geodetic Survey, Retrieval Date = AUGUST 28, 2015
PD0350 *****
PD0350 DESIGNATION - TIDAL 2 STA 7
PD0350 PID - PD0350
PD0350 STATE/COUNTY- ME/WASHINGTON
PD0350 COUNTRY - US
PD0350 USGS QUAD - HARRINGTON (1975)
PD0350
PD0350 *CURRENT SURVEY CONTROL
PD0350
PD0350* NAD 83(1986) POSITION- 44 30 54. (N) 067 51 28. (W) SCALED
PD0350* NAVD 88 ORTHO HEIGHT - 3.581 (meters) 11.75 (feet) ADJUSTED
PD0350
PD0350 GEOID HEIGHT - -23.50 (meters) GEOID12B
PD0350 DYNAMIC HEIGHT - 3.581 (meters) 11.75 (feet) COMP
PD0350 MODELED GRAVITY - 980,583.0 (mgal) NAVD 88
PD0350
PD0350 VERT ORDER - SECOND CLASS 0
PD0350
PD0350.The horizontal coordinates were scaled from a topographic map and have
PD0350.an estimated accuracy of +/- 6 seconds.
PD0350.
PD0350.The orthometric height was determined by differential leveling and
PD0350.adjusted by the NATIONAL GEODETIC SURVEY
PD0350.in June 1991.
PD0350
PD0350.The dynamic height is computed by dividing the NAVD 88
PD0350.geopotential number by the normal gravity value computed on the
PD0350.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PD0350.degrees latitude (g = 980.6199 gals.).
PD0350
PD0350.The modeled gravity was interpolated from observed gravity values.
PD0350
PD0350; North East Units Estimated Accuracy
PD0350;SPC ME E - 94,450. 351,060. MT (+/- 180 meters Scaled)
PD0350
PD0350 SUPERSEDED SURVEY CONTROL
PD0350
PD0350 NGVD 29 (??/??/92) 3.783 (m) 12.41 (f) ADJ UNCH 2 0
PD0350
PD0350.Superseded values are not recommended for survey control.
PD0350
PD0350.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
PD0350.See file dsdata.txt to determine how the superseded data were derived.
PD0350
PD0350_U.S. NATIONAL GRID SPATIAL ADDRESS: 19TEK907297(NAD 83)
PD0350
PD0350_MARKER: DJ = TIDAL STATION DISK
PD0350_SETTING: 66 = SET IN ROCK OUTCROP
PD0350_SP_SET: BEDROCK
PD0350_STAMPING: NO 2 1948
PD0350_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
PD0350+STABILITY: POSITION/ELEVATION WELL
PD0350
PD0350 HISTORY - Date Condition Report By
```

http://www.ngs.noaa.gov/cgi-bin/ds_mark.pl?PidBox=PD0350

1/2

8/28/2015

DATASHEETS

PD0350	HISTORY	- 1948	MONUMENTED	CGS
PD0350	HISTORY	- 1962	GOOD	CGS
PD0350	HISTORY	- 1966	GOOD	CGS

PD0350

STATION DESCRIPTION

PD0350

PD0350'DESCRIBED BY COAST AND GEODETIC SURVEY 1962

PD0350'2.4 MI SE FROM MILBRIDGE.

PD0350'0.5 MILE SOUTH ALONG U.S. HIGHWAY 1 FROM THE POST OFFICE AT

PD0350'MILBRIDGE, THENCE 1.8 MILES SOUTHEAST ALONG A BLACK TOP ROAD

PD0350'LEADING TO WYMAN, THENCE 0.1 MILE EAST ALONG A DIRT TRAIL LEADING

PD0350'TO PIER FOUNDATION (FORMERLY A STEAMBOAT WHARF), ABOUT MIDWAY

PD0350'BETWEEN MITCHELL AND LONG POINT, ABOUT 0.5 MILE NORTH OF WYMAN,

PD0350'SET ON TOP OF BEDROCK FLUSH WITH THE GROUND AND AT EDGE OF BLUFF,

PD0350'NEAR THE NORTH END OF ROW OF TREES, 74 FEET SOUTH OF THE OLD

PD0350'WHARF, 38 FEET SOUTHWEST OF BENCH MARK W 147 1962, 37 FEET EAST

PD0350'OF THE EAST END OF TRAIL AND ABOUT LEVEL WITH THE GROUND.

PD0350

STATION RECOVERY (1966)

PD0350

PD0350

PD0350'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1966

PD0350'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02

Tidal 2 Sta 7 Close Up



Tidal 2 Sta 7 Tripod Height





The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.7.1
1      National Geodetic Survey, Retrieval Date = AUGUST 28, 2015
PD0353 *****
PD0353 DESIGNATION - TIDAL 3 STA 7
PD0353 PID - PD0353
PD0353 STATE/COUNTY- ME/WASHINGTON
PD0353 COUNTRY - US
PD0353 USGS QUAD - HARRINGTON (1975)
PD0353
PD0353 *CURRENT SURVEY CONTROL
PD0353
PD0353* NAD 83(1986) POSITION- 44 30 53. (N) 067 51 27. (W) SCALED
PD0353* NAVD 88 ORTHO HEIGHT - 2.528 (meters) 8.29 (feet) ADJUSTED
PD0353
PD0353 GEOID HEIGHT - -23.50 (meters) GEOID12B
PD0353 DYNAMIC HEIGHT - 2.528 (meters) 8.29 (feet) COMP
PD0353 MODELED GRAVITY - 980,583.0 (mgal) NAVD 88
PD0353
PD0353 VERT ORDER - SECOND CLASS 0
PD0353
PD0353.The horizontal coordinates were scaled from a topographic map and have
PD0353.an estimated accuracy of +/- 6 seconds.
PD0353.
PD0353.The orthometric height was determined by differential leveling and
PD0353.adjusted by the NATIONAL GEODETIC SURVEY
PD0353.in June 1991.
PD0353
PD0353.The dynamic height is computed by dividing the NAVD 88
PD0353.geopotential number by the normal gravity value computed on the
PD0353.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PD0353.degrees latitude (g = 980.6199 gals.).
PD0353
PD0353.The modeled gravity was interpolated from observed gravity values.
PD0353
PD0353; North East Units Estimated Accuracy
PD0353;SPC ME E - 94,420. 351,080. MT (+/- 180 meters Scaled)
PD0353
PD0353 SUPERSEDED SURVEY CONTROL
PD0353
PD0353 NGVD 29 (??/??/92) 2.730 (m) 8.96 (f) ADJ UNCH 2 0
PD0353
PD0353.Superseded values are not recommended for survey control.
PD0353
PD0353.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
PD0353.See file dsdata.txt to determine how the superseded data were derived.
PD0353
PD0353_U.S. NATIONAL GRID SPATIAL ADDRESS: 19TEK908296(NAD 83)
PD0353
PD0353_MARKER: DJ = TIDAL STATION DISK
PD0353_SETTING: 66 = SET IN ROCK OUTCROP
PD0353_SP_SET: ROCK LEDGE
PD0353_STAMPING: NO 3 1948
PD0353_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
PD0353+STABILITY: POSITION/ELEVATION WELL
PD0353
PD0353 HISTORY - Date Condition Report By

```

8/28/2015

DATASHEETS

PD0353	HISTORY	- 1948	MONUMENTED	CGS
PD0353	HISTORY	- 1962	GOOD	CGS

PD0353

PD0353

STATION DESCRIPTION

PD0353

PD0353'DESCRIBED BY COAST AND GEODETIC SURVEY 1962

PD0353'2.4 MI SE FROM MILBRIDGE.

PD0353'0.5 MILE SOUTH ALONG U.S. HIGHWAY 1 FROM THE POST OFFICE AT

PD0353'MILBRIDGE, THENCE 1.8 MILES SOUTHEAST ALONG A BLACK TOP ROAD

PD0353'LEADING TO WYMAN, THENCE 0.1 MILE EAST ALONG A TRAIL LEADING

PD0353'TO AN OLD PIER, ABOUT MIDWAY BETWEEN MITCHELL AND LONG POINT,

PD0353'0.5 MILE NORTH OF THE VILLAGE OF WYMAN, SET ON THE TOP OF A

PD0353'ROCK LEDGE THAT IS 3 FEET EAST AND ABOUT 5 FEET LOWER THAN

PD0353'THE DIRT BLUFF OVERLOOKING THE BAY, 215 FEET SOUTH OF TIDAL

PD0353'2 1948 WHICH IS AT THE END OF THE TRAIL.

*** retrieval complete.

Elapsed Time = 00:00:02

Tidal 3 Sta 7 Close Up



Tidal 3 Sta 7 Tripod Height





The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.7.1
1      National Geodetic Survey,  Retrieval Date = AUGUST 28, 2015
PE0205 *****
PE0205 DESIGNATION - F 169
PE0205 PID - PE0205
PE0205 STATE/COUNTY- ME/HANCOCK
PE0205 COUNTRY - US
PE0205 USGS QUAD - WINTER HARBOR (1985)
PE0205
PE0205 *CURRENT SURVEY CONTROL
PE0205
PE0205* NAD 83(1986) POSITION- 44 29 19. (N) 068 02 02. (W) SCALED
PE0205* NAVD 88 ORTHO HEIGHT - 29.097 (meters) 95.46 (feet) ADJUSTED
PE0205
PE0205 GEOID HEIGHT - -23.82 (meters) GEOID12B
PE0205 DYNAMIC HEIGHT - 29.096 (meters) 95.46 (feet) COMP
PE0205 MODELED GRAVITY - 980,579.5 (mgal) NAVD 88
PE0205
PE0205 VERT ORDER - SECOND CLASS 0
PE0205
PE0205.The horizontal coordinates were scaled from a topographic map and have
PE0205.an estimated accuracy of +/- 6 seconds.
PE0205.
PE0205.The orthometric height was determined by differential leveling and
PE0205.adjusted by the NATIONAL GEODETIC SURVEY
PE0205.in June 1991.
PE0205
PE0205.The dynamic height is computed by dividing the NAVD 88
PE0205.geopotential number by the normal gravity value computed on the
PE0205.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PE0205.degrees latitude (g = 980.6199 gals.).
PE0205
PE0205.The modeled gravity was interpolated from observed gravity values.
PE0205
PE0205; North East Units Estimated Accuracy
PE0205;SPC ME E - 91,430. 337,070. MT (+/- 180 meters Scaled)
PE0205
PE0205 SUPERSEDED SURVEY CONTROL
PE0205
PE0205 NGVD 29 (??/??/92) 29.296 (m) 96.12 (f) ADJ UNCH 2 0
PE0205
PE0205.Superseded values are not recommended for survey control.
PE0205
PE0205. NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
PE0205.See file dsdata.txt to determine how the superseded data were derived.
PE0205
PE0205_U.S. NATIONAL GRID SPATIAL ADDRESS: 19TEK768265(NAD 83)
PE0205
PE0205_MARKER: DB = BENCH MARK DISK
PE0205_SETTING: 66 = SET IN ROCK OUTCROP
PE0205_SP_SET: BEDROCK
PE0205_STAMPING: F 169 1966
PE0205_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
PE0205+STABILITY: POSITION/ELEVATION WELL
PE0205
PE0205 HISTORY - Date Condition Report By

```

8/28/2015

DATASHEETS

PE0205	HISTORY	- 1966	MONUMENTED	CGS
PE0205	HISTORY	- 1986	GOOD	USPSQD

PE0205

STATION DESCRIPTION

PE0205

PE0205'DESCRIBED BY COAST AND GEODETIC SURVEY 1966

PE0205'0.8 MI NE FROM GOULDSBORO.

PE0205'0.15 MILE NORTH ALONG STATE HIGHWAY 186 FROM THE POST OFFICE AT

PE0205'GOULDSBORO, THENCE 0.65 MILE NORTHEAST ALONG U.S. HIGHWAY 1,

PE0205'ON PRIVATE PROPERTY AND PERMISSION GRANTED, SET ON THE TOP OF A

PE0205'LARGE MASS OF BEDROCK WHICH PROJECTS 1 FOOT ABOVE GROUND, 103

PE0205'FEET NORTHWEST OF THE CENTER LINE OF THE HIGHWAY, 66 FEET WEST

PE0205'OF THE SOUTH CORNER OF A HOUSE, ON THE PROPERTY OF MRS LAWRENCE

PE0205'JOY (IN 1966), AND ABOUT 4 FEET ABOVE THE LEVEL OF THE HIGHWAY.

PE0205'NOTE-- THIS MARK COULD BE USED FOR AN AZIMUTH MARK FOR

PE0205'TRIANGULATION STATION HOVEY WITH A VERY LITTLE CLEARING.

PE0205

STATION RECOVERY (1986)

PE0205

PE0205'RECOVERY NOTE BY US POWER SQUADRON 1986 (ELG)

PE0205'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02

F 169 Closeup



F 169 Tripod Height





The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.7.1
1      National Geodetic Survey, Retrieval Date = AUGUST 28, 2015
PE0204 *****
PE0204 DESIGNATION - Q 69
PE0204 PID - PE0204
PE0204 STATE/COUNTY- ME/HANCOCK
PE0204 COUNTRY - US
PE0204 USGS QUAD - WINTER HARBOR (1985)
PE0204
PE0204 *CURRENT SURVEY CONTROL
PE0204
PE0204* NAD 83(1986) POSITION- 44 29 28. (N) 068 01 18. (W) SCALED
PE0204* NAVD 88 ORTHO HEIGHT - 8.559 (meters) 28.08 (feet) ADJUSTED
PE0204
PE0204 GEOID HEIGHT - -23.81 (meters) GEOID12B
PE0204 DYNAMIC HEIGHT - 8.559 (meters) 28.08 (feet) COMP
PE0204 MODELED GRAVITY - 980,577.0 (mgal) NAVD 88
PE0204
PE0204 VERT ORDER - SECOND CLASS 0
PE0204
PE0204.The horizontal coordinates were scaled from a topographic map and have
PE0204.an estimated accuracy of +/- 6 seconds.
PE0204.
PE0204.The orthometric height was determined by differential leveling and
PE0204.adjusted by the NATIONAL GEODETIC SURVEY
PE0204.in June 1991.
PE0204
PE0204.The dynamic height is computed by dividing the NAVD 88
PE0204.geopotential number by the normal gravity value computed on the
PE0204.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
PE0204.degrees latitude (g = 980.6199 gals.).
PE0204
PE0204.The modeled gravity was interpolated from observed gravity values.
PE0204
PE0204; North East Units Estimated Accuracy
PE0204;SPC ME E - 91,710. 338,040. MT (+/- 180 meters Scaled)
PE0204
PE0204 SUPERSEDED SURVEY CONTROL
PE0204
PE0204 NGVD 29 (??/??/92) 8.754 (m) 28.72 (f) ADJ UNCH 2 0
PE0204
PE0204.Superseded values are not recommended for survey control.
PE0204
PE0204.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
PE0204.See file dsdata.txt to determine how the superseded data were derived.
PE0204
PE0204_U.S. NATIONAL GRID SPATIAL ADDRESS: 19TEK777268(NAD 83)
PE0204
PE0204_MARKER: DB = BENCH MARK DISK
PE0204_SETTING: 66 = SET IN ROCK OUTCROP
PE0204_SP_SET: ROCK OUTCROP
PE0204_STAMPING: Q 69 1935
PE0204_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
PE0204+STABILITY: POSITION/ELEVATION WELL
PE0204
PE0204 HISTORY - Date Condition Report By

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http://www.ngs.noaa.gov/cgi-bin/ds_mark.pr1?PidBox=PE0204

1/2

8/28/2015

DATASHEETS

PE0204	HISTORY	- 1935	MONUMENTED	CGS
PE0204	HISTORY	- 1966	GOOD	CGS
PE0204	HISTORY	- 1986	GOOD	USPSQD

PE0204

STATION DESCRIPTION

PE0204

PE0204'DESCRIBED BY COAST AND GEODETIC SURVEY 1966

PE0204'1.6 MI NE FROM GOULDSBORO.

PE0204'0.15 MILE NORTH ALONG STATE HIGHWAY 186 FROM THE POST OFFICE AT
PE0204'GOULDSBORO, THENCE 1.4 MILES NORTHEAST ALONG U.S. HIGHWAY 1, SET
PE0204'ON THE TOP OF A 3-BY-2-FOOT OUTCROP WHICH IS FLUSH WITH THE
PE0204'GROUND, 45.5 FEET NORTH OF THE CENTER LINE OF THE HIGHWAY, 22
PE0204'FEET SOUTHEAST OF THE SOUTHEAST CORNER OF A NEW ONE-STORY HOUSE
PE0204'(NEW IN 1966), AND ABOUT 3 FEET ABOVE THE LEVEL OF THE HIGHWAY.

PE0204

STATION RECOVERY (1986)

PE0204

PE0204'RECOVERY NOTE BY US POWER SQUADRON 1986 (ELG)

PE0204'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02